Diagnostic work up of a child suspected of having Juvenile Idiopathic Arthritis (JIA)

Investigations	**Rationale and what to look for ?**	**Key points**
Full / Complete blood count (CBC)	Evidence of inflammation including mild anaemia, leukocytosis and thrombocytosis. Exclude other causes in particular hematologic malignancy.	Oligoarticular JIA may have normal CBC given it's subtle systemic inflammation. Systemic JIA usually reveals profound inflammation except for coexisting with macrophage activation syndrome. Avoid steroids before malignancy excluded.
ESR and/or CRP	Evidence of inflammation.	Oligoarticular JIA may have ESR. and/or CRP given it's subtle systemic inflammation. May be useful for monitoring disease activity.
Blood chemistry including renal function, creatinine, liver function tests	Baseline laboratory data prior to initiation of medications such as NSAIDs, DMARDs	Monitoring periodically to determine possible adverse toxicity from medications.
Clotting profile, ferritin, fibrinogen, D-dimer	Evidence of macrophage activation syndrome (MAS) in patients with suspected systemic JIA (*very high ferritins observed*).	
Serum 25 (OH) D	Determine vitamin D status and consider supplementation with glucocorticoids treatment.	
Anti-nuclear antibody (ANA)	Determine risk of developing uveitis and guidance for uveitis screening interval.	Usually present with positive at low titre. Usually absent in patients with systemic JIA. If high titre ANA present, may consider connective tissue diseases as diagnostic possibility.

Rheumatoid factor (RF) and/or anti-cyclic citrullinate peptide (CCP) antibody	Classify subtypes of JIA and determine prognostic factor.	Found in minority of patients with JIA. Negative RF should not exclude JIA. Usually absent in patients with systemic JIA.
HLA-B27	Classify subtypes of JIA and determine prognostic factor in patients with enthesitis-related arthritis (ERA).	
PPD skin test or Interferon-Gamma Release Assays	Screening for latent tuberculosis infection prior to commencing immunosuppressive agents.	Guidance depends of endemic risk of infections,
Stool concentration for parasites	Screening for latent tuberculosis infection prior to commencing immunosuppressive agents.	Guidance depends of endemic risk of infections.
Chest radiograph	Screening for pulmonary tuberculosis prior to commencing immunosuppressive agents. Look for evidence of pericardial effusion and pleural effusion in patients suspected systemic JIA.	
Plain radiograph of affected joints	Baseline joint radiographic findings. Exclude other diseases such as malignancy.	X-ray finding may be subtle abnormal in early disease.
Ultrasound of affected joints	Look for effusion in deep joints such as hips Look for tenosynovitis	Non –invasive procedure. May use as guidance for arthrocentesis.

MRI of affected joints	Sensitive to demonstrate synovitis/arthritis and bone erosion.	Expensive and access may be difficult.
Slit-lamp examination	Screening for asymptomatic uveitis. Baseline eye examination in patients with glucocorticoids treatment.	Need regular screening examination. JIA uveitis risk profile based on JIA subtypes.
Arthrocentesis	Consider in cases concerning with chronic joint infection such as tuberculosis arthritis	Synovial fluid usually reveals inflammatory type. Helpful to exclude other diagnoses including pigmented vilonodular synovitis (*heavily blood stained aspirate*) Synovial biopsy not required to diagnose JIA.